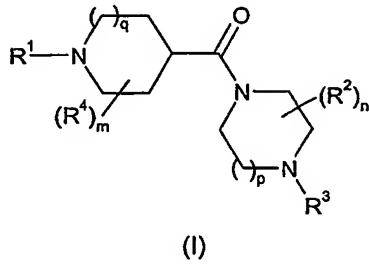


## CLAIMS

1. A compound of formula (I) or a pharmaceutically acceptable salt thereof:



5

wherein:

- R<sup>1</sup> represents aryl, heteroaryl, -aryl-X-C<sub>3-7</sub>, cycloalkyl, -heteroaryl-X-C<sub>3-7</sub> cycloalkyl, -aryl-X-aryl, -aryl-X-heteroaryl, -aryl-X-heterocyclyl, -heteroaryl-X-heteroaryl, -heteroaryl-X-aryl or -heteroaryl-X-heterocyclyl;
- wherein said aryl, heteroaryl and heterocyclyl groups of R<sup>1</sup> may be optionally substituted by one or more (eg. 1, 2 or 3) substituents which may be the same or different, and which are selected from the group consisting of halogen, hydroxy, cyano, nitro, oxo, haloC<sub>1-8</sub> alkyl, polyhaloC<sub>1-6</sub> alkyl, haloC<sub>1-6</sub> alkoxy, polyhaloC<sub>1-6</sub> alkoxy, C<sub>1-8</sub> alkyl, C<sub>1-8</sub> alkoxy, C<sub>1-8</sub> alkylthio, C<sub>1-8</sub> alkoxyC<sub>1-8</sub> alkyl, C<sub>3-7</sub> cycloalkylC<sub>1-8</sub> alkoxy, -CO-C<sub>1-8</sub> alkyl, -CO-C<sub>1-8</sub> alkyl-halogen, -CO-C<sub>1-8</sub> alkyl-cyano, C<sub>1-8</sub> alkoxy carbonyl, C<sub>1-8</sub> alkylsulfonyl, C<sub>1-8</sub> alkylsulfinyl, C<sub>1-8</sub> alkylsulfonyloxy, C<sub>1-8</sub> alkylsulfonylC<sub>1-8</sub> alkyl, C<sub>1-8</sub> alkylsulfonamidoC<sub>1-8</sub> alkyl, C<sub>1-8</sub> alkylamidoC<sub>1-8</sub> alkyl, aryl, arylsulfonyl, arylsulfonyloxy, aryloxy, arylsulfonamido, arylcarboxamido, aroyl, or a group NR<sup>15</sup>R<sup>16</sup>, -CONR<sup>15</sup>R<sup>16</sup>, -NR<sup>15</sup>COR<sup>16</sup>, -C(R<sup>15</sup>)=NOR<sup>16</sup>, -NR<sup>15</sup>SO<sub>2</sub>R<sup>16</sup> or -SO<sub>2</sub>NR<sup>15</sup>R<sup>16</sup>, wherein R<sup>15</sup> and R<sup>16</sup> independently represent hydrogen or C<sub>1-8</sub> alkyl or together form a heterocyclic ring;
- X represents a bond, O, CO, SO<sub>2</sub>, OCH<sub>2</sub> or CH<sub>2</sub>O;
- each R<sup>2</sup> and R<sup>4</sup> independently represents C<sub>1-4</sub> alkyl;
- R<sup>3</sup> represents C<sub>3-8</sub> alkyl, C<sub>3-6</sub> alkenyl, C<sub>3-6</sub> alkynyl, C<sub>3-6</sub> cycloalkyl, C<sub>5-8</sub> cycloalkenyl or -C<sub>1-4</sub> alkyl-C<sub>3-6</sub> cycloalkyl;
- wherein said C<sub>3-6</sub> cycloalkyl groups of R<sup>3</sup> may be optionally substituted by one or more (eg. 1, 2 or 3) substituents which may be the same or different, and which are selected from the group consisting of halogen, C<sub>1-4</sub> alkyl or trifluoromethyl groups;
- m and n independently represent 0, 1 or 2;
- p and q independently represent 1 or 2;
- or a pharmaceutically acceptable salt thereof.

2. A compound of formula (I) as defined in claim 1 wherein R<sup>1</sup> represents -aryl optionally substituted by 1, 2 or 3 halogen, C<sub>1-8</sub> alkyl, polyhaloC<sub>1-6</sub> alkyl, C<sub>1-8</sub> alkoxy, polyhaloC<sub>1-6</sub> alkoxy, -CO-C<sub>1-8</sub> alkyl, -C(R<sup>15</sup>)=NOR<sup>16</sup>, -NR<sup>15</sup>COR<sup>16</sup>, -CO-C<sub>1-8</sub> alkyl-halogen, -CO-C<sub>1-8</sub> alkyl-cyano, cyano or C<sub>1-8</sub> alkoxy carbonyl groups; -aryl-X-C<sub>3-7</sub> cycloalkyl;

- aryl-X-aryl;
  - aryl-X-heterocycll optionally substituted by 1, 2 or 3 halogen or oxo groups;
  - aryl-X-heteroaryl optionally substituted by a C<sub>1-6</sub> alkyl or aryl group;
  - heterocycll optionally substituted by 1, 2 or 3 C<sub>1-6</sub> alkyl or -COC<sub>1-6</sub> alkyl groups;
  - 5 heteroaryl optionally substituted by 1, 2 or 3 cyano, halogen, polyhaloC<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> alkoxy carbonyl or -CONR<sup>15</sup>R<sup>16</sup> groups;
  - heteroaryl-X-aryl optionally substituted by 1, 2 or 3 cyano or C<sub>1-6</sub> alkylsulfonyl groups;
  - 10 -heteroaryl-X-heterocycll; or
  - heteroaryl-X-heteroaryl.
3. A compound of formula (I) as defined in claim 2 wherein R<sup>1</sup> represents phenyl, naphthyl or indanone optionally substituted by 1, 2 or 3 halogen, C<sub>1-6</sub> alkyl, polyhaloC<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkoxy, polyhaloC<sub>1-6</sub> alkoxy, -COC<sub>1-6</sub> alkyl, -C(R<sup>15</sup>)=NOR<sup>16</sup>, -NR<sup>15</sup>COR<sup>16</sup>, -COC<sub>1-6</sub> alkyl-halogen, -COC<sub>1-6</sub> alkyl-cyano, cyano or C<sub>1-6</sub> alkoxy carbonyl groups;
- 15 -phenyl-CO-cyclopropyl or -phenyl-CO-cyclobutyl;
- phenyl-thiazolyl, -phenyl-oxadiazolyl, -phenyl-pyrrolyl, -phenyl-oxazolyl or -phenyl-isoxazolyl optionally substituted by a C<sub>1-6</sub> alkyl or aryl group; or
- 20 pyridyl, pyrimidyl, pyrazinyl, pyridazinyl, quinolinyl, isoquinolinyl or benzothiazolyl optionally substituted by 1, 2 or 3 cyano, halogen, polyhaloC<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> alkoxy carbonyl or -CONR<sup>15</sup>R<sup>16</sup> groups.
4. A compound of formula (I) as defined in claim 3 wherein R<sup>1</sup> represents phenyl optionally substituted by 1, 2 or 3 halogen, polyhaloC<sub>1-6</sub> alkyl, -NR<sup>15</sup>COR<sup>16</sup>, -COC<sub>1-6</sub> alkyl or cyano groups;
- 25 -phenyl-CO-cyclopropyl;
- phenyl-oxadiazolyl or -phenyl-oxazolyl optionally substituted by a C<sub>1-6</sub> alkyl or aryl group; or
- 30 pyridyl, pyrimidyl, pyrazinyl, pyridazinyl or quinolinyl optionally substituted by 1, 2 or 3 halogen, polyhaloC<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkyl or cyano groups.
5. A compound of formula (I) as defined in claim 4 wherein R<sup>1</sup> represents phenyl optionally substituted at the 4-position by a -COMe, -COEt or cyano group; or
- 35 pyridyl or quinolinyl optionally substituted by a methyl or CF<sub>3</sub> group.
6. A compound of formula (I) as defined in claim 5 wherein R<sup>1</sup> represents -6-CF<sub>3</sub>-pyridin-3-yl.
- 40
7. A compound of formula (I) as defined in any one of claims 1 to 6 wherein X represents a bond, O or CO.

8. A compound of formula (I) as defined in claim 7, wherein X represents a bond or CO.
- 5 9. A compound of formula (I) as defined in any one of claims 1 to 8 wherein m represents 0.
- 10 10. A compound of formula (I) as defined in any one of claims 1 to 9 wherein n represents 0, 1 or 2.
11. A compound of formula (I) as defined in claim 10 wherein n represents 0 or 1.
12. A compound of formula (I) as defined in claim 10 or claim 11 wherein R<sup>2</sup> represents methyl.
- 15 13. A compound of formula (I) as defined in claim 11 wherein n represents 0.
14. A compound of formula (I) as defined in any one of claims 1 to 13 wherein q represents 1.
- 20 15. A compound of formula (I) as defined in any one of claims 1 to 14 wherein R<sup>3</sup> represents C<sub>3-8</sub> alkyl or C<sub>3-8</sub> cycloalkyl.
- 25 16. A compound of formula (I) as defined in claim 15 wherein R<sup>3</sup> represents isopropyl, isobutyl or cyclobutyl.
17. A compound of formula (I) as defined in claim 16 wherein R<sup>3</sup> represents isopropyl or cyclobutyl.
- 30 18. A compound of formula (I) as defined in claim 17 wherein R<sup>3</sup> represents isopropyl.
19. A compound of formula (I) as defined in claim 1 which is a compound of E1-E198 or a pharmaceutically acceptable salt thereof.
- 35 20. A compound of formula (I) as defined in claim 1 which is  
1-Isopropyl-4-[1-(5-cyano-pyridin-2-yl)-piperidine-4-carbonyl]-piperazine;  
1-Isopropyl-4-[1-(5-methoxycarbonyl-4-trifluoromethylpyridin-2-yl)-piperidine-4-carbonyl]-piperazine;
- 40 1-Isopropyl-4-[1-(4-ethoxycarbonylphenyl)-piperidine-4-carbonyl]-piperazine;  
1-Cyclobutyl-4-[1-(4-cyanophenyl)-piperidine-4-carbonyl]-piperazine;  
1-Cyclobutyl-4-[1-(4-cyano-3-fluorophenyl)-piperidine-4-carbonyl]-piperazine;

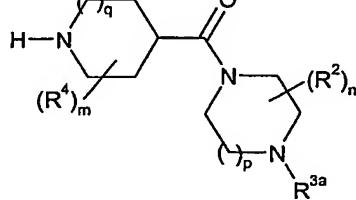
- 1-Cyclobutyl-4-[1-(4-cyano-2,6-difluorophenyl)-piperidine-4-carbonyl]-piperazine;  
 1-Cyclobutyl-4-[1-(4-cyano-3-trifluoromethylphenyl)-piperidine-4-carbonyl]-piperazine;  
 1-Cyclobutyl-4-[1-(4-cyano-naphthalen-1-yl)-piperidine-4-carbonyl]-piperazine;  
 1-Cyclobutyl-4-[1-(5-cyanopyridin-2-yl)-piperidine-4-carbonyl]-piperazine;
- 5 1-Cyclobutyl-4-[1-(6-trifluoromethylpyridin-2-yl)-piperidine-4-carbonyl]-piperazine;  
 1-Cyclobutyl-4-[1-(5-trifluoromethylpyridin-2-yl)-piperidine-4-carbonyl]-piperazine;  
 1-Cyclobutyl-4-[1-(3-chloro-5-trifluoromethylpyridin-2-yl)-piperidine-4-carbonyl]-  
 piperazine;
- 10 1-Isopropyl-4-{1-[5-(4-methylsulfonylphenyl)-pyrimidin-2-yl]-piperidine-4-carbonyl}-  
 piperazine;  
 1-Isopropyl-4-[1-[4-(morpholino-carbonyl)-phenyl]-piperidine-4-carbonyl]-piperazine;
- 15 1-Cyclopentyl-4-[1-(4-cyano-phenyl)-piperidine-4-carbonyl]-piperazine;  
 (2R,6S)-1-Cyclobutyl-4-[1-(4-cyanophenyl)-piperidine-4-carbonyl]-2,6-  
 dimethylpiperazine;
- 20 1-Isopentyl-4-[1-(5-cyano-pyridin-2-yl)-piperidine-4-carbonyl]-piperazine;  
 1-Cyclobutyl-4-[1-(4-cyanophenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;  
 1-Cyclobutyl-4-[1-(5-cyanopyridin-2-yl)-piperidine-4-carbonyl]-[1,4]-diazepane;  
 1-Isopropyl-4-[1-(4-cyano-2,5-difluorophenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;  
 1-Isopropyl-4-[1-(4-cyano-3-chlorophenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;
- 25 20 1-Isopropyl-4-[1-(4-cyano-3-fluoro-phenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;  
 1-Isopropyl-4-[1-(4-cyano-2,6-difluoro-phenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;  
 1-Isopropyl-4-[1-(4-cyano-2-fluoro-phenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;  
 1-Isopropyl-4-[1-(4-cyano-3-trifluoromethyl-phenyl)-piperidine-4-carbonyl]-[1,4]-  
 diazepane;
- 30 25 1-Isopropyl-4-[1-(4-trifluoromethyl-phenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;  
 1-Isopropyl-4-[1-(4-cyano-naphthalen-1-yl)-piperidine-4-carbonyl]-[1,4]-diazepane;  
 1-Isopropyl-4-[1-(3,4-dichlorophenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;  
 1-Isopropyl-4-[1-(4-trifluoromethoxyphenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;  
 1-Isopropyl-4-[1-(4-difluoromethoxyphenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;
- 35 30 1-Isopropyl-4-[1-(4-phenoxyphenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;  
 1-Isopropyl-4-[1-(6-methoxypyridin-3-yl)-piperidine-4-carbonyl]-[1,4]-diazepane; 1-  
 Isopropyl-4-[1-(4-cyano-2,3-difluorophenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;  
 1-Isopropyl-4-[1-(4-cyano-2-chlorophenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;  
 1-Cyclobutyl-4-[1-(4-cyano-2-chlorophenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;
- 40 35 1-Cyclobutyl-4-[1-(4-cyano-3-chlorophenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;  
 1-Cyclobutyl-4-[1-(4-cyano-3-fluorophenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;  
 1-Cyclobutyl-4-[1-(4-cyano-3-trifluoromethylphenyl)-piperidine-4-carbonyl]-[1,4]-  
 diazepane;  
 1-Cyclobutyl-4-[1-(4-cyano-2,5-difluorophenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;  
 (S)-1-Isopropyl-4-[1-(4-cyanophenyl)-piperidine-4-carbonyl]-2-methylpiperazine;  
 (S)-1-Isopropyl-4-[1-(6-cyanopyridin-3-yl)-piperidine-4-carbonyl]-2-methyl piperazine;  
 (S)-1-Isopropyl-4-[1-(5-cyanopyridin-2-yl)-piperidine-4-carbonyl]-2-methyl piperazine;

- (S)-1-Isopropyl-4-[1-(5-trifluoromethyl-pyrazin-2-yl)-piperidine-4-carbonyl]-2-methyl piperazine;
- (S)-1-Isopropyl-4-[1-(6-trifluoromethyl-pyridazin-3-yl)-piperidine-4-carbonyl]-2-methyl piperazine;
- 5 1-Isopropyl-4-{1-[4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl]-piperidine-4-carbonyl} piperazine;
- 1-Isopropyl-4-[1-(quinolin-6-yl)-piperidine-4-carbonyl] piperazine;
- 1-Cyclobutyl-4-[1-(6-trifluoromethylpyridin-3-yl)-piperidine-4-carbonyl] piperazine;
- 1-Isopropyl-4-[1-(5-trifluoromethyl-pyrazin-2-yl)-piperidine-4-carbonyl]-piperazine;
- 10 (S)-1-Isobutyl-4-[1-(4-cyanophenyl)-piperidine-4-carbonyl]-piperazine;
- 1-Isopropyl-4-[1-(4-cyclopropylcarbonylphenyl)-piperidine-4-carbonyl]-piperazine;
- 1-Isopropyl-4-[1-(2-methyl-quinolin-6-yl)-piperidine-4-carbonyl]-piperazine;
- 1-Isopropyl-4-[1-(6-cyano-pyridin-3-yl)-piperidine-4-carbonyl]-piperazine;
- 1-Cyclobutyl-4-[1-(6-trifluoromethylpyridin-3-yl)-piperidine-4-carbonyl]-[1,4]-diazepane;
- 15 1-Cyclobutyl-4-[1-(2-cyanopyridin-4-yl)-piperidine-4-carbonyl]-[1,4]-diazepane;
- 1-Isopropyl-4-[1-(6-trifluoromethylpyridazin-3-yl)-piperidine-4-carbonyl]-[1,4]-diazepane;
- 1-Isopropyl-4-[1-(5-trifluoromethylpyrazin-2-yl)-piperidine-4-carbonyl]-[1,4]-diazepane;
- 1-Isopropyl-4-{1-[4-(2-methyl-1,3-oxazol-5-yl)phenyl]-piperidine-4-carbonyl}-[1,4]-diazepane;
- 20 1-Isopropyl-4-{1-[4-(3-methyl-1,2,4-oxadiazol-5-yl)phenyl]-piperidine-4-carbonyl}-[1,4]-diazepane;
- 1-Isopropyl-4-[1-(4-acetamido-3-fluorophenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;
- 1-Cyclobutyl-4-[1-(4-acetylphenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;
- 1-Cyclobutyl-4-[1-(6-cyano-pyridin-3-yl)-piperidine-4-carbonyl]-[1,4]-diazepane;
- 25 1-Isopropyl-4-[1-(6-cyano-pyridin-3-yl)-piperidine-4-carbonyl]-[1,4]-diazepane;
- 1-Isopropyl-4-[1-(2-methyl-quinolin-4-yl)-piperidine-4-carbonyl]-[1,4]-diazepane;
- 1-Isopropyl-4-{1-[4-(3-methyl-1,2,4-oxadiazol-5-yl)phenyl]-piperidine-4-carbonyl}-piperazine;
- 1-Isopropyl-4-[1-(2-trifluoromethylpyrimidin-5-yl)-piperidine-4-carbonyl]-[1,4]-diazepane;
- or a pharmaceutically acceptable salt thereof.
- 30 21. A compound of formula (I) as defined in claim 1 which is
- 1-Isopropyl-4-[1-(4-cyanophenyl)-piperidine-4-carbonyl]-piperazine;
- 1-Isopropyl-4-[1-(4-cyanophenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;
- (S)-1-Isopropyl-4-[1-(6-trifluoromethylpyridin-3-yl)-piperidine-4-carbonyl]-2-methyl piperazine;
- 35 1-Isopropyl-4-[1-(4-acetylphenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;
- 1-Isopropyl-4-[1-(4-propanoylphenyl)-piperidine-4-carbonyl]-[1,4]-diazepane;
- or a pharmaceutically acceptable salt thereof.
- 40 22. A compound of formula (I) as defined in claim 1 which is
- 1-Isopropyl-4-[1-(6-trifluoromethylpyridin-3-yl)-piperidine-4-carbonyl]-piperazine;
- 1-Isopropyl-4-[1-(6-trifluoromethylpyridin-3-yl)-piperidine-4-carbonyl]-[1,4]-diazepane;

or a pharmaceutically acceptable salt thereof.

23. A pharmaceutical composition which comprises the compound of formula (I) as defined in any one of claims 1 to 22 or a pharmaceutically acceptable salt thereof and a pharmaceutically acceptable carrier or excipient.
- 5 24. A compound as defined in any one of claims 1 to 22 for use in therapy.
25. A compound as defined in any one of claims 1 to 22 for use in the  
10 treatment of neurological diseases.
26. Use of a compound as defined in any one of claims 1 to 22 in the manufacture of a medicament for the treatment of neurological diseases.
- 15 27. A method of treatment of neurological diseases which comprises administering to a host in need thereof an effective amount of a compound of formula (I) as defined in any one of claims 1 to 22 or a pharmaceutically acceptable salt thereof.
28. A pharmaceutical composition for use in the treatment of neurological  
20 diseases which comprises the compound of formula (I) as defined in any one of claims 1 to 22 or a pharmaceutically acceptable salt thereof and a pharmaceutically acceptable carrier.
29. A process for the preparation of a compound of formula (I) or a pharmaceutically  
25 acceptable salt thereof, which process comprises:

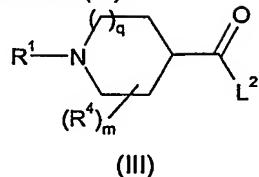
- (a) reacting a compound of formula (II)



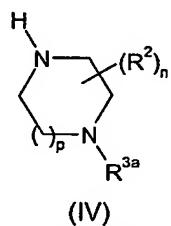
30 (II)

or an optionally activated or protected derivative thereof, wherein R<sup>2</sup>, R<sup>4</sup>, m, n, p and q are as defined in claim 1 and R<sup>3a</sup> is as defined for R<sup>3</sup> in claim 1 or a group convertible to R<sup>3</sup>, with a compound of formula R<sup>1</sup>-L<sup>1</sup>, wherein R<sup>1</sup> is as defined in claim 1 and L<sup>1</sup>  
35 represents a suitable leaving group, such as a halogen atom followed by a deprotection reaction as necessary; or

(b) reacting a compound of formula (III)



- 5 wherein R<sup>1</sup>, R<sup>4</sup>, m and q are as defined in claim 1 and L<sup>2</sup> represents OH or a suitable leaving group, such as a halogen atom, with a compound of formula (IV)



- 10 wherein R<sup>2</sup>, n and p are as defined in claim 1 R<sup>3a</sup> is as defined for R<sup>3</sup> in claim 1 or a group convertible to R<sup>3</sup>; or

(c) deprotecting a compound of formula (I) or converting groups which are protected; and optionally thereafter

15

(d) interconversion to other compounds of formula (I).